

## REMARKS

### **I. Status of the Claims**

Claims 14, 17, 20, and 23-25 were pending at the time of the Action. Claims 14 and 23-25 have been amended. Claims 30-38 have been added. Support for the amended claims can be found throughout the disclosure as originally filed and more particularly at least on page 4, line 26 to page 5, line 7; and from page 5, line 26 to page 6, line 3; page 6, lines 12 – 22; FIG. 2, and the claims as originally filed. Applicants note that FIG. 2 describes various amplification primers that span exons of the SCN1A gene. The specification on page 6 describes primer specific amplification of the SCN1A nucleic acid stating “. . . a pair of primers is designed to specifically amplify a segment of one of the markers [e.g., SCN1A gene]. . . .” SEQ ID NO:1 defines an mRNA or cDNA of the SCN1A that contains the sequence of the processed transcript of the SCN1A gene, *i.e.*, exons with intervening introns removed. The fragments designated by nucleotides 739-867, 3970-4143, and 5521-5747 of SEQ ID NO:1 represent those exon regions amplified by primer pairs defined in FIG. 2, *i.e.*, NaC-63/NaC-64, NaC-143/NaC-144, and NaC-262/NaC-263, respectively. Priming sites for the primers can be found in either exonic or intronic region in the following related SEQ IDs: primers NaC-63 and NaC-64 can be found in SEQ ID NO:9, primers NaC-143 and NaC-144 can be found in SEQ ID NO:25, and primers NaC-262 and NaC-263 sites can be found in SEQ ID NO:32. Therefore, written description for the nucleic acid fragments of claim 14 is present in the application as filed. No new subject matter has been added by the afore mentioned amendments.

Claims 30-38 have been added. Support for new claim 30 is found at least on page 52. Support for new claim 31 is found at least on page 27, line 16. Support for new claims 32 and 36 is found at least in Example 6 and in particular at page 55, lines 14 and 15. Support for new

claims 33 and 37 is found at least in Example 3 and in particular at page 52, lines 7 to 9; and in Figure 3. Support for new claims 34 and 38 is found at least in Example 3 and in particular at page 52, lines 15 to 18; and in Figure 3. Finally, support for claim 35 is found at least at page 4, lines 2-3; lines 19-22; and lines 26-29; at page 27, lines 3-4 and in the corresponding Figure 3; at page 27, line 16, and at page 36 from lines 27-29. No new subject matter has been added.

Claims 14, 17, 20, 23-25, and 30-38 are now pending and in condition for allowance.

## **II. Rejections under 35 U.S.C. §112**

### **A. Claims 14, 17, 20, and 24-25 satisfy the enablement requirement of 35 U.S.C. §112, first paragraph**

Claims 14, 17, 20, and 24-25 are rejected under 35 U.S.C. §112, first paragraph as not complying with the enablement requirement. Applicants have further clarified claim 14 by including the phrase “at least 95% identical to SEQ ID NO:1, wherein the nucleic acid encodes an alpha subunit of an SCN1A sodium channel.” In light of the current claims this rejection is moot.

### **B. Claims 14, 17, 20, and 24-25 satisfy the written description requirement of 35 U.S.C. §112, first paragraph**

Claims 14, 17, 20, and 24-25 have been rejected under 35 U.S.C. §112, first paragraph as failing to comply with the written description requirements. Applicants have further clarified claim 14 by including the phrase “at least 95% identical to SEQ ID NO:1, wherein the nucleic acid encodes an alpha subunit of an SCN1A sodium channel.” In light of the current claims this rejection is moot.

**C. Claim 25 satisfies the written description requirement of 35 U.S.C. §112, first paragraph**

Claim 25 is rejected under 35 U.S.C. §112 as lacking written description for mutations at nucleotides 828, 3978, and 5582. Applicants respectfully traverse.

The genesis of this rejection is merely one of "point of reference." From the Actions perspective, A565T and the respective mutations at nucleotide 3978 and 5582 are identified using the A of the initiator ATG codon as nucleotide 1. By this convention amino acid 188 would be encoded by a total number of 564 nucleotides ( $188 \times 3 = 564$ ). SEQ ID NO:1 includes an additional 265 nucleotides 5' of the initiator ATG, thus in relation to SEQ ID NO:1 mutation at A565T is located at nucleotide 828 ( $564 + 265 = 829$  total nucleotides minus one = **828**; since the second nucleotide of codon 188 is mutated: from gAt, encoding aspartic acid to gTt, encoding valine [the D188V mutation "*The A565T substitution correspond to a non-conservative amino acid change (D188V).*" Page 55, lines 14-15]) when using the numbering of SEQ ID NO:1. Typically nucleic acid sequences are presented as there cDNA sequence that includes 5' non-translated (5'UT) regions that can be represented as negative numbers relative to the initiator codon. However, sequence listing conventions do no allow such numbering leading to the discrepancy identified in the Action. One of skill in the art would readily recognize this discrepancy and identify the A565T mutation at nucleotide position 828 of SEQ ID NO:1. This should also be clear from the enclosed initial copy of the sequences filed with the application (Annex 1), which shows the 5'UT as lower case letters and the coding region as upper case. Further more "Seq Id No:1" (Annex 2), the first sequence described in Annex 1, highlights the initiator ATG and the GAT codon of the 188<sup>th</sup> amino acid. With respect to the nucleotide position 3978 mutation (amino acid position 1238) and the nucleotide position 5582 mutation (amino acid position 1773) the support is easily identified, since for example, it should be clear

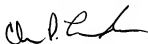
to the skilled artisan that the nucleotide sequences which are mutated: GCATTGAAGATATA OR ATCATATCCTTCCTG (Fig. 3 and page 52) are found between positions 3970-3984 (with "C" being at position 3978) and positions 5575-5589 (with "A" being at position 5582) of SEQ ID NO:1; respectively. Applicants respectfully request the withdrawal of the rejection.

### III. CONCLUSION

Applicants believe that the present document is a full and complete response to the Action dated September 18, 2007. The present case is in condition for allowance, and such favorable action is respectfully requested.

The Examiner is encouraged to contact the undersigned Attorney at (512) 536-3167 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,



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## Annex 1

## SEQUENCE LISTING

[illegible]

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 RALKTISVIPGLKTIVGAL  
 IQSVKKLSDVMILTVFCLSVFALIGLQLFMGNLRNKCQWPPPTNASLEEHSIEKNITVNYN  
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FSIMGVNLFAGKFYHCINTTTGDRFDIEDVNNHTDCLKLIERNETARWKNVKVNFDNVG  
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NTLFMAMEHYPMTDHFNNVL  
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DYMSPINNPSLT VTPVIAVG  
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GKQWWNLRRTCFRIVEHNWFET FIVFMILLSSGALAFEDIYIDQRKTIKTMLEYADKVFT  
YIFILEMLLKWVAYGYQTYF  
TNAWCWLD FLIVDVSLVSLTANALGYSELGAIKSLRTLRLRPLRALS RFEGMRVVVNA  
LLGAIPSIMNVLLVCLIFWLI



FSIMGVNLFAGKFYHCINTTTGDRFDIEDVNNHTDCLKLIERNETARWKNVKVNFNDNVG  
FGYLSLLQVATFKGWMDIMYA  
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MEFEKLSQFAAALEPPLN  
LPQPNKLQLIAMDLPMVSGDRIHCLDILFAFTKRVLGESGEMDALRIQMEERFNASNPS  
KVSYPITTILKRKQEEVSAV  
IIQRAYRRHLLKRTVKQASFTYNKNKIKGGANLLIKEDMIIDRINENSITEKTDLTMSTAA  
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[illegible]

सू. in No: 6

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sep. in 1977

taagaagagacgcagtgacagctgtttcatcggggcactttaggaattgtagtctgctgtttcatttaactfta  
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cgtcttgacagACTTTTATAGTATTAAGGAAGGCCATCTCCGGTTCAGTGCCAC  
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Exp. m NO: 7

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Seq. ID NO: 9

e. exon 05 (formerly exon 04)

gctaaatagatttcataacctgtattctcacactactcttaagacactttacgaacaactctttgtgttaggaagc  
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CTGTCAATTACATTTTCGctaaagtgccttbygaaactttaagagagaacatagtttggtttccatcagtgcttatgctttaagaat  
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atgaaggctttgcagtagt

Seq. ID NO: 10

f. exon 06N (formerly exon 05N)

cttataagcccatgcagtaataataaactcgtctaaaacttgaaataattcgtatttaattctacag  
GTTTGTAAACAGAATTTGTAAACCTAGGCAATTTTTCAGCTCTTCGCACTTTTCAGAGTC  
TTGAGAGCTTTTGAAAACATTTTCGGTAATTCAGGtaagaagtgattagagtaaagatagagctcttgtacc  
tacagctttttctgtctgctgttttggtttgggtgaactcccgcttacag

11

g. exon 06A (formerly exon 05A)

gtaagaagtgattagagtaagataggctctttgtacctacagctttttctgtctgttttgggtttgtgtg  
aactcccgcttacagGTACGTCACAGAGTTTGTGGACCTGGGCAATGTCTCGGCATTGAGAAC  
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gagacggaccalcatgtgattcagcatctctcgtctgacattcagtttacagaaaatcaggaaataagactaggtgttcaagaagaatg  
attattatgtagacatagcttatcagcctggagtta

12

h. exon 07 (formerly exon 06)

cacgcgtgcttagccctcatagtaataagcctcctacctcagGCCTGAAAACCATTTGTGGGAGCCCTGATCCCA  
GTCTGTGAAGAAGCTCTCAGATGTAAATGATCCTGACTGTGTTCTGTCTGAGCGTATTT  
GCTCTAATTGGGCTGCAGCTGTTCATGGGCAACCTGAGGAATAAATGTATACAATGG  
CCTCCCACCAATGCTTCTTGGAGGAACATAGTATAGAAAAGAAATAAACTG  
TGAATTATAATGGTACACTTATAAATGAAACTGTCTTTGAGTTTGAAGTCAAT  
ATATTCGAAGATTCAGtaagaattattgttatgacatttctttaaagtagaattggattgttgtaacacaaaggataaataact  
gaggggctggatactccatttac

13

i. exon 08 (formerly exon 07)

cgcgcgaataactgtgctttgaatgaataatatattaaaattactcaataaacttaaaagtagaacctgaccttctg  
ttctctttgagtggtttttaacaaatgcaaatgttcagcatagcactttctttttcaaacagGATATCATTTATTTCCTGGA  
GGGTTTTTTAGATGCACTACTATGTGGAAATAGCTCTGATGCAGGtaagtaaatattgtgtgcat  
ctgtgatattgtatgacacaatacatatgtgtatcttt

89-10-14

## j. exon 09 (formerly exon 08)

aggtgtgaaatgcaaatatcaacaaaattatttgtaaaattattagaatgctgcaccatattttaatgatg  
 caccaagtagctaataagactatatgcagtcāāāagggtggaatagattgacttatttgtcaaaactttttatttga  
 aataccaaaactttctgactaggcaatatcatagcatagtatcacagagtaaaaggcagcagaacgactgttaatactttc  
 ttttaccocacttgcagCCAATGTCCAGAGGGATATATGTGTGTGACAGCTGGTAGAAATCCCCA  
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## k. exon 10 (formerly exon 09)

tatatctgagtttctagccacatgagtaaatgaaagttgagcacccctagtgaaataatgtggaaataatctga  
 tattttttttgcagACATTACGTGCTGCTGGGAAAACGTACATGATAITTTTTGTATTGGTCAT  
 TITCTTGGGCTCATTCTACCTAATAAAATTTGATCCTGGCTGTGGTGGCCATGGCcTACG  
 AGGAAACAGAAATCAGGCCACCTTGGAAGAAGCAGAAACAGAAAAGAGGCCGAATTTCA  
 GCAGATGATTGAAACAGCTTAAAAAGCAACAGGAGGCAGCTCAGtaagctgccctgtcat  
 ggcactgaccttatcgtctgatgtactatatgagagaagtagtctagagcgtgtgat

## l. exon 11 (formerly exon 10a)

caaccctaataaataccaatttttaaagttaaatcaaatcccaaaaagtaatgaattttttctgttgatcatgttg  
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 aaaatcatttctctcaatagCAGGCAGCAACGGCAACTGCCTCAGAACATTCAGAGAGGCCA  
 GTGCAGCAGGCAGGCTCTCAGACAGCTCATCTGAAGCCTCTAAGTTGAGTTCCAAGA  
 GTGCTAAGGAAAGAAAGAAATCGGAGGAAGAAAAGAAAACAGAAAGAGCAGTCTGG  
 TGGGGAAGAGAAAAGATGAGGATGAATTCAAAAATCTGAATCTGAGGACAGCATCA  
 GGAGGWAAGGTTTTCGCTTCTCCATTGAAGGGAACCGGTTGACATATGAAAAAGAGG  
 TACTCTCCCCACACCAGgtatggcactgctgagtttactgatgcatggttgaaatttaaacaatggagagagggggaga  
 tttagaaaatggactcaggaattttatcaactgaatcaaccactgtgtgttatatttaaacccatccctctcacatagttatgcaaaaacttact  
 ccacagatatgtaagctacagctcgtgtgttagataacaccaagtggaca

n. exon 13 (formerly exon 10c)

Seq. ID NO: 19  
o. exon 14 (formerly exon 11)

**Seq. Id. No. 17 - 19**

Seq. ID NO. 20

p. exon 15 (formerly exon 12)

caagccatttaccacatctgaagacctcagtttcccttatctgtaagtaaatgtatatatctacttcggttcca  
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 cattgtgggaaatagcataagcattatgttctaagagcaaatcttatgtctatgttatctgttgaattagat  
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 CATGGATCCTTACTTATTTCCAGGAAGGCTGGAATATCTTTGACGGTTTATTGTG  
 ACGCTTAGCCTGGTAGAACTTGGACTCGCCAATGTGGAAGGGTTATCTGTTCTCCGT  
 TCATTTTCGATTGTgtaaaaaaaaaaaaaaaggaaacaaattcaaaaaccttctaca  
 ttacgggttctgcatagcattgtcatagttttttgccacacaaccttaggcattgtaagttttctgtaacatttgc  
 attgtcaaaaacttttctacatgggaataattctcaatttaggttacccttagttcaagggcwaggtcggaagglaa  
 cgggtt

Seq. ID NO. 21

q. exon 16 (formerly exon 13)

gaattctaattgaccatttctaggtaaagctcaatatataatgcttttaagaatcatacaaatatataatctttca  
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 CGTCTTCATTTTTGCGCTGGTCCGCATGCAGCTCTTTGGTAAAAGCTACAAAGATTGT  
 GTCTGCAAGATCGCCAGTGATTGTCAACTCCCACGCTGGCACATGAATGACTTCTTC  
 GACTCKHCTGATTGTGTTCCGCGTGTGTGTGGGGAGTGGATAGAGACCATGTGG  
 GACTGTATGGAGGTTGCTGGTCAAGCCATGTGCCCTTACTGTCTTCATGATGGTCATG  
 GTGATTGGAACCTAGCGtatgtaccaccttaagatatgattttggaaata  
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 aaaaagagataaatttaattggtgactgttttgcataaaagaaaaaacaactgattattggtttaaaagccattaccct  
 tggalatattatcaactttaacaacacagaacaatatabcagtgccctgcatttttatacacaattctattttgacgtca  
 ctftatcacatttttatgtgaattacaatagatcatattgagatgagcctaaaaggatgtgctggaccattttat  
 aaattcagagccaaggaagagagaagtct

22

r. exon 17 (formerly exon 14)

gaattctctgattgtacacafataaactgttttctctactcatacaattttagagtttaacaaaaccttagattagctc  
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 tccacactttaaagaagaataaagtgattgtaactgtcttccctacatgggtgaaattataatcatggtttttgtg  
 tttttaagGTCCTGAATCTCTTCTGGCCCTTGCTTCTGAGCTCATTATAGTGCAGACAACCTT  
 GCAGCCACTGATGATGATAATGAAATGAATAATCTCCAAATTGCTGTGGATAGGATG  
 CACAAAGGAGTAGCTTATGTGAAAAAGAAAAATATATGARATTTATCAACACAGTCTCTC  
 ATTAGGAAACAAAAGATTTTATGATGAAATTAACCACTTGATGATCTAAACAACAA  
 GAAAGACAGTTTGTATGTCCAATCATACAGCAGAAATTTGGGAAAGATCTTGACTATCT  
 TAAAGATGTAATGGAACCTACAAGTGGTATAGGAACCTGGCAGAGTGTGAAAAAT  
 ACATTATTGATGAAAAGTGATTACATGTCTATTTCATAAACAACCCAGTCTTACTGT  
 GACTGTACCAATTGCTGTAGGAGAATCTGACTTTGaaAATTTAAACACGGAAGACTTT  
 AGTAGTGAATCGGATCTGGAAGAAGCAAGAGAGtaagattctatagggtgggtaggtagtatgaatcatataca  
 atatatatacatacacatagatgagcctcagcttaattgatgtttttacttaaga

Seq. Id. No. 23

## s. exon 18 (formerly exon 15)

aagcttcattgtgaattatggtaaaagggttagcacagacaatgattttcttattcttccccttattcaatctctctt  
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 ccaaaattaaggacttttcttctatgtccattcacttacagAAACTGGAATGAAAAGCAGTAGCTCATCAGAAGG  
 TAGCACTGTGGACATCGGCGCACCTGTAGAAGAACAGCCCGTAGTGGAACTGGAAG  
 AAACCTCTTGAAccgAAGCTTGTTCACCTGAAAGgtaaagaaagaatcctaattgtaattcttcatttgagtgca  
 gctttatttagctgttggtagctaaanataaatcacatataataaaatngcactttgtaatagataaattcaatcacctctaataatnngacagacaa  
 aaaaacttaagcttagtgctcatgctttgattatatctgcccaatnng

## t. exon 19 (formerly exon 16)

ccatttaaatgtggctgaattgttccacaacttcacacagctgatgaatgtgcttactactcttaggcttagagagacta  
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 cttttactcttttatttcaacactttctgcagGCTGTGTACAAAGATTCAAGTGTGTCAAAATCAATGTGG  
 AAGAAGGCAGAGGAAAAACAAATGGTGGAACTGAGAAGGACGTGTTTCCGAATAGTT  
 GAACATAACTGGTTTGAGACCTTCATTGTTTTCATGATTCTCCTTAGTAGTGGTGCTC  
 TGgtgagtgagattaagaaaagggtatagcagcactaatitttagaacactctaactgatgacttattaaacctgtttcattgtcttagtatcca  
 atgcatttttaattatcccaccctgtatctctatagattttactctataactctataattctggattaacttttactatgtatgtaaatataaatttgaagaagc  
 taatcattaaattttgtactattataatagcccagaaggtgtgccccttcagcttattcattaaacaccaaggatgtgaattcaattac

## u. exon 20 (formerly exon 17)

ccacatcaggataacaatcaagaactatttctgactaagtcaaatattcattggaatcatactttctttttctt  
 caccatagctcttccccctgattaaataaagtaaaagacctttgcgagaaaaaaaaaaaagtaacagtaactactgtttct  
 ctgccctctattccaatgaaatgtcatatgcataatgatttaatttttaaatagcttatggagtataaattattttgaaa  
 gctaataatgttaacatttctttatagGCATTGGAAGATATATATATTGAYCAGCGAAAAGACGATTAA  
 AGACGATGTTGGAATATGCTGACAAAGGTTTTACCTTACATTTTCATTCTGGAATATGCT  
 TCTAAAAATGGGTGGCATAATGGCTATCAAACATATTTACCAATGCCTGGAGTTGGCT  
 GGACTTCTTAATTGTTGATgtaggtatcgttcataattttgtctgtcgaaggtagctgtcttattatattcaaatctacaatag  
 tgagtctcagaccactatgttatgttgacagactataatarcactaaacgcatatgcgaatgagagtgtcatttctggaagacaagggtctaa

## v. exon 21 (formerly exon 18)

aaaaattatacttgcgtattatatagcaactacacattgaatgatgattctgtttatattgttatattctgtgtg  
 tgcagGTTTCATTGGTCAGTTTAAACAGCAAATGCCTTGGGTTACTCAGAACTTGGAGCC  
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Seq. Id. No. 27

w. exon 22 (formerly exon 19)

ctgtgttatatgcctatagttgttttccctgaagtgtattgcttaagaaaaaaaaaatgaatttaagatttttgaacct  
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28

x. exon 23 (formerly exon 20)

aatggccattttgttcaatattgttctagaaatgaaagccatactaaaatactgtctgtgccaaatctgtgtaaaa  
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 atagcaattttatcagaaatcttactaagataattcaacacatgaatttttg

29

y. exon 24 (formerly exon 21)

cagaaaaaaaaaagctgacatatagtaagaataatttntctattgttgaagaaagccaccagtgacgatttccag  
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 CCTGTTTATTGGTGTCTATCATAGATAATTTCAACCAGCAGAAAAAGAAgataagttattcatt  
 atttctctcccactgagatagaaaaattattcttggagtgtttctctgccaaatgagtacttgaattagaacaaatgggagtataattataactg

30

z. exon 25 (formerly exon 22)

gtcattttgaattatttagggaattaaatattatcatacctaaagagtacaattttttacatttttaaatcccgata  
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Seq. ID No. 31

aa. exon 26 (formerly exon 23)

ttttaacaattaattatgctataaattcattctacaaaaatcatttggaaatgactactttgcaagaactagaagaatga  
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Seq. ID No. 32

ab. exon 27 (formerly exon 24)

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 KSWPTLNMLIKIIGNSVGA  
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 RKIREFIQKAFVRKQKALDEIK  
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 TVTVPIAVGESDFENLNT  
 EFSSSEDMEESKEKLNATSSSEGSTVDIGAPAEQEPEVEEESLEPEACFTEDCVRKFKC  
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 VAYGFQVYFTNAWCWLDL  
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 LLVCLIFWLIFSIMGVNLFA  
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 KKLGSKKPKQPIPRANKF

QGMVDFDVTKQVFDISIMILICLNMVMTMMVETDDQSQEMTNILYWINLVFIVLFTGECVL  
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VVILSIVGMFLAELIEKYFVSPTLFRVIRLARIGRILRLIKGAKGIRTLLFALMMSLPALFNI  
GLLLFLVMFIYAIFGMS  
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KRRQEEVSAMIQRAYRRYL  
LKQKVKKVSSIIYKKDKGKECDGTPIKEDTLIDKLNENSTPEKTDMPSTTSPPSYDSVTK  
PEKEKFEKDKSEKEDKGKDI  
RESKK.

Seq. Id. No. 35 (cont'd)

MAQSVLVPVPGPDSFRFFTTRESLAAIEQRIAEKAKRPKQERKDEDDENGPKPNSDLEAGK  
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 LIQSVKKLSDVMILTVFLCSVFALIGLQLFMGNLRNKCLQWPPDNSSFEINITSFNNSLD  
 NGGTTFNRTVSIFNWDEYI  
 EDKSHFYFLEGQNDALLCGNSSDAGQCPEGYICVKAGRNPNYGYTSFDITFSWAFLSLFR  
 LMTQDFWENLYQLTLRAAGKT  
 YMIFFVLVIFLGSFYLINLILAVVAMAYEEQNQATLEEAQEKEAEFQQMLEQLKKQEE  
 AQAAAAAASAESRDFSGAGGI  
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 LEGSRLTYEKRFPSPHQSL  
 SIRGSLFSPRRNSRSLFSFRGRAKDIGSENDADDEHSTFEDNDSRRDLSLVPHRHGERR  
 HSNVQASRASRVLPIPLM  
 NGKMHSADVDCNGVVSLVGGPSTLTSAGQLPEGTTTETEIRKRSSSYHVSMDLLEDPT  
 SRQRAMSIASILTNTMEELEE  
 SRQKCPPCWYKFANMCLIWDCCKPWLKVHLVNLVVMDFVDLAITICIVLNTLFMAM  
 EHYPMTEQFSSVLSVGNLVFTG  
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 KSWPTLNMILIKIIGNSVGA  
 LGNLTVLALIVFIFAVVGMQLFGKSYKECVKJSNDCELPRWHMHDFHFSFLIVFRVLC  
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 TVTVPIAVGESDFENLNTIE  
 EFSSESMEESKEKLNATSSSEGSTVDIGAPAEGEQPEVEPEESLEPEACFTEDCVRKFKC  
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 LLVCLIFWLIFSIMGVNLFA  
 GKFYHCINYTTGEMFDVSVVNNYSECKALIESNQATARWNKVKNFNDNVGLGYLSLLQV  
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QGMVDFVTKQVFDISIMILICLNMVTMMVETDDQSQEMTNILYWINLVFVLTGECVL  
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GLLLFLVMFIYAIFGMS  
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SVKGDCGNPSVGIFFFVSYI  
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AMDLPMVSGDRIHCLDILFAFTKRVLGESGEMDALRIQMEERFMA SNPSKVSYEPITTL  
KRKQEEVSAMIQRAYRRYL  
LKQKVKKVSSIIYKDKGKECDGTPIKEDTLIDKLNENSTPEKTDMPSTTSPPSYDSVTK  
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RESKK.

Seq. Id. No. 36 (cont'd)



38-10. N: 37

a. exon 01 (formerly exon 00)

gaattcttatatgggtgaatgacttctgacatagcaataaaagcatgaggagaagcattatctgttaacaaaat  
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cacatttacctctagaagatcattccatata

exon 02 (formerly exon 01)

ctcagtgcatgtaactgacacaataccctctatctaatgtcatgcttcttacctctgttctgtagCACTtTCTTATGC  
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aa

exon 03 (formerly exon 02)

cctatggcattgacacaattttcttaataatccatgcatttatacaattaggaaagtftatagtgctcagaaaa  
aaaaagcatctatcttcatgctcatatgatgttaattattatgtatatacattttlacaggccaattttataataatg  
gttttactttcttcaaaatattctaatatattctaaagttttgtttatgtgttggtttcttticagACGTTTT  
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ATTITAACTCCCTTCAACCCAT  
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ca  
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40

exon 04 (formerly exon 03)

accataatagcctcaaaatagttaggcttgccctgaagacaagatcataatatgaggttgcgtgattatagaatggc  
 aaaaaaaagggccaataatagataataagcaacaaaataatagtaagcactaaagttttaacctcatgggtggaagg  
 catggtagtcataaaagtaagatttttcattgaactttgtcttcttgacgatattctacTTTATTCAATATGTCTCAT  
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 GACAAAGAAATGTGGAGtaagtat  
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 aatcatgctagctactgttaaccagacctgattcaaatcatttctgactaaagtctcttaggacaaaagcttgtag  
 tgggctcacttagttgtgtaaatctactgca

41

exon 05 (formerly exon 04)

taagatatgtactgttaaattaaccactagatttttaatgtgagcttgctattgtctctcagGTATACCTTTACAGGAA  
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 CACATTTTACGGGATCCATGG  
 AATTGGTTGGATTTCACAGTCATTACTTTTGCgtaagtatcttaatacattttctaccgtgaagagtaaatcactggtg  
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42

exon 06N (formerly exon 05N)

caattagcacgtgtaaaagtaataaagtttcccaataacacagagattatgatgacaatgccattttcccttaattgg  
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 GAACTTTCAGAGT  
 CTTGAGAGCTTTGAAAACTATTTCTGTAATCCAGgtaagaagaaaatgggataaagggtgtagggcccttat  
 atctccaa  
 clgtttctgtgttctgcatlgtgttgggtggaacccctattacag

43

exon 06A (formerly exon 05A)

gtaagaagaaaatggataaggtggtaggcccttatatctccaactgtttctgtgttctgtcattgtgtgtgtg  
 aacccctattacagATATGTGACAGAGTTTGTGGACCTGGGCAATGTCTCAGCGTTGAGAAC  
 ATTACAGAGTCTCCGAG  
 CATTGAAAAACAATTCAGTCATTCCAGgtgagagctagggttaaacaccagggtgacttgctacagtggtgctacaat  
 cacagctttgtgcagaagcctgtgtgctagttgcatattgcaaataaatgtaaaaaagcaagaaatggatcatcatt  
 ttttgatggatttgattcttctgtttaccggtgttctttaaactattctaaactcagccttgagtttaacaag  
 tgttgcatga

Seq. in Nr. 44

exon 07 (formerly exon 06)

aaagagtggttggaaatacacatttgggtcatttccattcacagtttttctaataacatacaagttctgtttcattcal  
 ttccaccagctagtagcgttttcalgaaatgttattcaatcacaaacattaaataattgttggcattctgcatgac  
 attttattttccaggccaagctcatgataattttgccggtaaaatagctgttgagtagtatattaanttcccctct  
 gattttgtttgagGCTTGAAGACCAATTGTGGGGGCCCTGATCCAGTCAGTGAAGAAGCTTTC  
 TGATGTCATGATCTTTGA  
 CTGTGTTCTGTCTAAGCGTGTTTGCGCTAATAGGATTGCAGTTGTTTCATGGGCAACCT  
 ACGAAAATAAATGTTTGCAATGG  
 CCTCCAGATAATTCTTCCTTTGAAATAAATATCACTTCCTCTTTAACAATTCATTGG  
 ATGGGAATGGTACTACTTTCAA  
 TAGGACAGTGAGCATATTTAACTGGGATGAATATATTGAGGATAAAAGtaagatactactata  
 aaccatlaagttgtt  
 agttctctaataataataattatataataatggaaattatctcaattttagatgtgaatcaagtacttagactaatftaa  
 gatgatttaatacatataaaagagatatcaaaagataccttattctatttttctatctgtccattgatagtaaaagt  
 tctactgtgaaagtgtgtgtcttatactcatgttgaaagtaattcatattatgccataataaaaaaggtttatttgg  
 agacattaatcagggttttccagtcatttaataataaagtcagtagttgaactattcmgcttattccactgaaatgtcg  
 ttaagaagactgagggaataatttggccctatttgggtgatgcaacatagttattgagtagcatatgtctatctgaa  
 cttagagaaccatttatcaagatgaataagaattgtgtgctcctcagaaggttaaglaaccctgatttagccattcac  
 ttcacatattcttaatttagtccctt

45

exon 08 (formerly exon 07)

gtccaattattgtgaaaaatcttcttagccatatataatttattagtttaccatctcattatgattgaaaaacatttgg  
 agctttgccacctaacagggtggctgaagtgtttacaggattttaatgattcttctattcttctttaaataagG  
 TCACTTTTATTTTTACAGGGGCAAAATGATGCTCTGCTTTGTGGCAACAGCTCAGAT  
 GCAGGGtaagtgtatgcttct  
 actgagtttcagttccactgtctccatcagtgtaataacctgccacctcccactaccagttccaccactcttcaact  
 aaaacccctcataaattctacttcacgggtgactctcagaatgaccaggataaagttagattctca

46

exon 09 (formerly exon 08)

tataataatgacaattatgaatcacagaggaaatccacaaagtagaccttatagattctgtcattatataaatcagttccac  
 ttagtctgtagttaagtactgggaaggtgagagaatcggtttttttagtggcgtataaaacagacattggcatat  
 attaaaacaggaaaaaccaatttagcagacttgcgtattgactycctcttctctaaacctaatlacagCCAGTGTCC  
 TGAAGGATACATCTGTGTGAAGGCTGTGTGAAGCCCCAACTATGGCTACACGAGCT  
 TTGACACCTTTAGTTGGGCCCTTTT  
 TGTCTTATTTTCGTCTCATGACTCAAGACTTCTGGGAAAACCTTTATCAACTGgtgagaac  
 agataaaatcatttttctg  
 agaatcataaaacaccgaactcaagagaat

Seq. in 10: 47

exon 10 (formerly exon 09)

tgcgtgagaataattttattacttagagtgtaagttgtgaacatcctataaaaaattttaaaatctcttccatttg  
 cagACACTACGTGCTGCTGGGAAAAACGTACATGATATTTTTTGTGCTGGTCATTTTCTT  
 GGGCTCATTTCTATCTAATAAA  
 TTTGATCTTGGCTGTGGTGGCCATGGCCTATGAGGAACAGAATCAGGCCACATTGGA  
 AGAGGCTGAACAGAAGGGAAGCTG  
 AATTTTCAGCAGATGCTCGAACAGTTGAAAAAGCAACAAGAAAGCTCAGgtatagtga  
 caagcatagcgctctgtt  
 ttctgtatcctaattctttaacctaaatgttgaggtcagtgccagggtagttgacattagaaataggctcatatgtgtt  
 ggtaagtgtcaggagcctgtttgggtatttaagaagttattactttattgcaatgatctctgcaatagtgtcaatagtaa  
 tggcatcaaaaaatggataattataattgctttactgacatttttttccctgtgactccttgaggaaatfaatgatt  
 aacaaaaggcctcatgactcaacttcgagagtagataaacctacatgtcctcagltgaagtattttcttaggggaagag  
 gaattc

46

exon 11 (formerly exon 10a)

tatgtatcatctccatatgaatgcgcattttactcttggattggcttaataacagtgactgtgttctaaaaacagaaa  
 taaaatggagaattgttttcaagattatcttcgatattgaagctcaataagcagtaacatgataattatttttaa  
 gatnatatgcaacttccacatactttgccccttctagGCGGCAGCTGCAGCCGCATCTGCTGAATCAAGA  
 GACTTCAG  
 TGGTGTCTGGTGGGATAGGAGTTTTTTCAGAGAGTTCTTCAGTAGCATCTAAGTTGAG  
 CTCCAAAAGTGAAAAAGAGCTGA  
 AAAACAGAAAGAAAAGAAAAAGAAACAGAAAGAACAGTCTGGAGAAGAAAGAGAAAA  
 ATGCAGAGAGTCTTAAAAATCGGAATCT  
 GAAGACAGCATAAGAAGAAAAGGTTTCCGTTTTTCTTGAAGGAAGTAGGCTGAC  
 ATATGAAAAGAGATTTTCTTCTCC  
 ACACAGgtaaaaattttaaaattacatgaattgtgttctcataaatttttaaaagaatatgccagaatttaaggagag  
 aaaaccgcctccacctgtagggcaaatgctttcagagtagtgatgattcaaggttttggctacttcagagaa  
 ttgtgagttttgcaacttttggaaatccaggagaaggaattttagatccctctgggttggaaaaatttg

49

exon 12 (formerly exon 10b)

ttaggggacacttctgactatgttgagggtgtgggtlaaagtaggagaaaagagagcagaagatggaaaatggaggaaagga  
 gaaaaagcgagagtgaaatagaaaaggtgaacctgtgagaagtgccaaaatgccaccagcagtcacagaggggtgctt  
 tctccacatgtccaatgacttatccttgagtaagtcactatgacacaatgaatcaaatctgttttcagaalgc  
 cagctcttaactctctcatctcattttgttcttttcttattcatagTCCTTACTGAGCATCCGTGGCTCCCTTT  
 TCTCTCCAAGACGCAACAGTAGGGCGAGCCTTTTCAGCTTCAGAGGTCGAGCAAAAG  
 GACATTGGCTCTGAGAATGACTTT  
 GCTGATGATGAGCACAGCACCTTTGAGGACAATGACAGCCGAAGAGACTCTCTGTT  
 CGTGCCGCACAGACATGGAGAAGC

GCGCCACAGCAATGTCAGCCAGGCCAGCCGCTGCCAGGGTGCTCCCCATCCTGCC  
 CATGAATGGGAAGATGCATAGCG  
 CTGTGGACTGCAATGGTGTGGTCTCCCTGGTCGGGGGCCCTTCTACCCTCACATCTG  
 CTGGGCAGCTCCTACCAAGAggtg  
 aggccaaacyymagattgcagctgatgtgaagagagttgtgactgggtgcaggcaggagtgtytttccattmccatctaa  
 gaatttktttgatttttgcctcaaaaggctgggagttgttcaatcaagctgttaactgtctgtgaaactsttctatca  
 gacttctacaaagttaataaaaacctagggttggtgtgcagagataatagamtmatcttctcatcayyattaacta  
 tggatgaactcgcctcaaaaggcaagcaacaatttatcaagcataatgttygaytaatatagttaaataaatcaagg  
 aaataatgctcacaataataataacttaaggattttgtgattgtgttcatttaaaggaga

51  
 exon 13 (formerly exon 10c)

ataggaaaagccaccttgacaaaccagggtcctcccaaaagctgaaactgcagacactttaacaacccccaaataatt  
 atcattccaacataatcttagtgagctttttacatctgagaaagcatgggtglatattagttaaataacacctgtgtgag  
 gaatctgttgggcttctgtcttcaaaaatagtggttattcatctgaaattctactctagGGCACAACTACTGAAAC  
 AGAAATAAGAAAGAGACGGTCCAGTTCCTATCATGTTTCCATGGGATTTATTGGAAGA  
 TCCTACATCAAGGCCAAGAGCAA  
 TGAGTATAGCCAGTATTTTGACCAACACCATGGAAGgtatgttaaaagtcctgcgtcacagtacttggtg  
 ctttctctaa  
 tgatgaaaaacacttcataaatttcaataaaatacttctgactgtatgttatctattacacattttactaaataa  
 cagtaaaatccgtgcataactcatggattcatattccacagatttttttttattatattagcctgtagaagctgct  
 gcaaatgtaaggtatatttggaaccactttcataacttaa

51  
 exon 14 (formerly exon 11)

gcttactagcctttctgtactgatcctttctatgacagcaaacccattgtaaaatttccctgttccctccagcagattaa  
 cccataatctctttaacaacttttagattttttaaatctttttaatttaaaccaaaactgcttaatagaagtaagcag  
 ttttcatgaggattctaaacttttttctccagAACTTGAAGAATCCAGACAGAAATGCCACCATTGCTGGT  
 ATAAATTT  
 GCTAATATGTGTTTGTATTGTTGGGACTGTTGTAAAGCATGGTTAAAGGTGAAACACCTT  
 GTCAACCTGGTTGTAATGGACCC  
 ATTTGTTGACCTGGCCATCACCATTGCTGCTTAAATACACTCTTCATGGCTATG  
 GAGCACTATCCCATGACGGAGC  
 AGTTCAGCAGTGTACTGTCTGTTGGAAACCTGgtaagcctcactgagagtttctctctctgaaagagtttaataattg  
 ccttgtaatttttcatattgctctcaaatataatcaactaattggccatgtatatctgacatcaaatgttttagca  
 tcccttttaataacaaaaaattgtgtaccatagtgcaaaagagtcgaagaatttatgacaatttgattagaattg  
 aattt

52

exon 15 (formerly exon 12)

tggcccaaccaatttttaaacagggaatttaattwtatattgttgggagtgtaaattagtgctcaataattatcgt  
 gtttcaakastatttgcctacataatgaactacacttctcatttagGTCCTTCACAGGGATCTTCACAGCAGAAATGT  
 TTC  
 TCAAGATAATTGCCATGGATCCCATATTATTACTTTCAAGAAGGCTGGAATATTTTTG  
 ATGGTTTTATTGTGAGCCTTAGT  
 TTAATGGAACCTGGTTTGGCAAATGTGGAAGGATTGTCAGTTCTCCGATCATTCCGG  
 CTGgtaaatcaactgggagtggt  
 cataaaatgactttttaatttaattagttcttctcatctagtaaaatggcaagattcccatcattataatatt  
 tgaatacxttctaaacagattggattggcataccaccaaatggtagttcttctcatcatagctttaalaagaattca  
 cttaaa

53

exon 16 (formerly exon 13)

acagatttccctctgtgctcatgtgactacccxcatgtgcacatgtaccctaaaaaxttagtatataataataaaataa  
 aataaaaaataaxaaataaaaaataaaaaataaaaaatgcagatttttttagaaatgcagagxaftaacactgttct  
 tgcittttatttccagCTCCGAGTTTCAAGTTGGCAAAATCTTGGCCAACTCTAAATATGCTAA  
 TTAAGATCATTTGGCAA  
 TTCTGTGGGGGCTCTAGGAAACCTCACCTTGGTATTGGCCATCATCGTCTTCATTTTT  
 GCTGTGGTCGGCATGCAGCTCT  
 TTGGTAAGAGCTACAAAGAAATGTGTCTGCAAGATTTCGAATGATTGTGAACCTCCAC  
 GCTGGCACATGCATGACTTTTTCT  
 CACTCCTTCTGATCGTGTTCGCGTGCTGTGTGGAGAGTGGATAGAGACCATGTGG  
 GACTGTATGGAGGTGCTGGCCA  
 AACCATGTGCCTTACTGTCTTCATGATGGTCATGGTGATTGGAATCTAGTGgtatgtagc  
 aaaaacatttctcattt  
 tcatlaaaaxataatgtaatacattlaaaagtxgttcaactgaagaata

74

exon 17 (formerly exon 14)

gtttcatttagcaatgatttcagatttttctgcaatgactaataagcaaatagtgataatgatttttatattgacc  
 aagcatttttatttcaacttctttttcagaatagtgatcatgaatttagcagaatgcatgtagaataaaaaaggt  
 gcaagaacaactcttagaaaactaatgatggaagcaattgaagcaatagaaatgtttgatcacctgttttctctgctgt  
 gtttcagGTTCTGAACCTCTTCTTGCCCTTGCTTTTGAGTTCCTTCAGTTCTGACAACTCTTG  
 CTGCCACTGATGATGATA  
 ACGAAATGAATAATCTCCAGATTGCTGTGGAAGGATGCAGAAAGGAATCGATTTT  
 GTTAAAGAAAAATACGTGAATTT  
 ATTCAGAAAGCCTTTGTTAGGAAGCAGAAAGCTTTAGATGAAATTAACCGCTTGAA  
 GATCTAAATAATAAAAAAGACAG  
 CTGTATTTCCAACCATACCACTAGAAATAGGCAAGACCTCAATTATCTCAAAGA  
 CGGAAATGGAACCTACTAGTGGA

55

56  
(form

57  
(form)

Seq. Id. No. 54 (cont'd) and  
Seq. Id. No. 55 - 57

58  
exon 21 (formerly exon 18)

aaattctttaggccttcccaacttaagtcagactctgctattggtgttttaacaagaccctgggtgattttga  
aactcatgaaggttcgagaattactgattcattgcatagagcaaggctgaactgtgtagacattttatgttaataag  
aaaattgtgtgctttttctgtatagGCTCTACTGGTTAGCTTAACGTGCAAAATGCCTTTGGGTTACTCAG  
AAGTTGGTGCC  
ATCAAATCCCTCAGAACACTAAGAGCTCTGAGGCCACTGAGAGCTTTGTCCCGGTTT  
GAAGGAATGAGGgtaagactgaa  
tgccttagagtttgtagaattattattgagcagactgacactttgtaccatggaaatgtcaaatattggagaatt  
gtgtcttacacattcactgacatagctaatcaatcaaaaataatattaccagatgcccataactgtggcactgctg

59  
exon 22 (formerly exon 19)

taattttaaaattctagttggagctaccagagctctagtttctaccataattcaacttgaacagattttttaatca  
tttgactgttcttttaataatgtttaaaaaaagtaaatattgtttgttgctttcactatttttctctcatcctg  
tgccagGTTGTTGTAAATGCTCTTTTAGGAGCCATTCCATCTATCATGAATGTACTTCTG  
GTTTGTCTGATCTTTTGGCT  
AATATTCAGTATCATGGGAGTGAATCTCTTTGCTGGCAAGTTTACCATTGTATTAAT  
TACACCACTGGAGAGATGTTTG  
ATGTAAGCGTGGTCAACAACACTACAGTGAGTGCAAAGCTCTCATTGAGAGCAATCAA  
ACTGCCAGGTGGAAAAATGTGAAA  
GTAAACTTTGATAACGTAGGACTTGGATATCTGTCTCTACTTCAAGTAagtaagtaacactttat  
tattttccatgatg  
gtaattaaaatgagtcataaagtgtttctcctcataatgagatatccacctgttagaatggctattatcaaacagataaa  
tgacaataaatgctggcaagaatgtgaagaaaagggaaccctgtacattgttgcagggatgtaaatagtagtacttt

60  
exon 23 (formerly exon 20)

atttgaagtattttcaatgcatatcgcaaaacattgccccaaaagtgaatacaaaattcaagcttatttatgacctga  
ttgaatacatgtcaaatagaattttgatcaattatcaattatttttcaaaattataattttgggaaaaagaaaaatga  
tatgactttctacagGCCACGTTTAAGGGATGGATGGATATTATGTATGCAGCTGTTGATTCA  
CGAAATgtaagtcta  
gttagagggaattgttagttgattaaatgtattttcacaattgttaatttagtgatattgtcaataaaaaaaa  
ttatgtgcttaatttaaaaaccctactatattataaggataaaattatcaactactatttttcaaaattatcata  
gtagatattttcctaactcactctglatcttttaacatacttttctagatttagcaaggcactgcacaaaaactttat

61  
exon 24 (formerly exon 21)

taaaacactgcttagataattaaaaactcactgatgacttttggaaacaagtagatataaattggttacaattcttc  
atatcttttagGTAGAATTACAACCCCAAGTATGAAGACAACCTGTACATGTATCTTTATTTT  
GTCATCTTTATTATTTT  
GGTTTCATTCTTTACCTTGAATCTTTTCATTGGTGTCATCATAGATAACTTCAACCAAC  
AGAAAAAGAAAGataagtatat  
aaaacttcatcctgctctgaatatgaactaaatttatacactctttccttagcctccaaatgcaatcaccaaaaa  
aagaataaaaaattcagaataattttgagacatttgataatcgat



62  
 exon 25 (formerly exon 22)

tcgataagcctttaagcaattaataattcagatagcatgttttgatatttttagctagaaatgactaatatggcat  
 aatttataatattgaataaaggcctctataataacagatattagtaacaatagaatgaaatgtgggagccaattttac  
 atgattactaaagtggtatttatagccagcaagaacacaaatttaacaagttgtgcttcattctttacTTTGGAGGT  
 CAAGACATTTTATGACAGAA GAA CAGAAGAAATACTACAATGCAATGAAAAAACT  
 GGGTTCAAAGAAACCAAAAAACC  
 CATACCTCGACCTGCTgtagaataacatattttcgtgcctgttaaacatatattacctaaccgtttcacagcccgaa  
 ttctagaaacctagtattttgtgatttgaacacaaagtttttaccttaacaatgggactagctagccttaaatagct  
 tgaaaaatgtactttacatatataatgtataaattatataatgcataacatattttatgtaaacatataaaataca

63  
 exon 26 (formerly exon 23)

gttttcaagggaattttttttgtaaaatgtgtgaggtataaagatgtgttttataaaagctacatttttgtgc  
 ttcttaaaatcagaagaatttgaaatcgatttttttaagggtttctaatggaaactttacatatatttgttcacgAACA  
 AATTCCAAGGAATGGTCTTTGATTTTGTGAACCAACAAGTCTTTGATATCAGCATCA  
 TGATCCTCATCTGCCTTAACATG  
 GTCACCATGATGGTGGAACCGATGACCAGAGTCAAGAAATGACAAACATTCTGTA  
 CTGGATTAATCTGGTGTTTATTGT  
 TCTGTTCACTGGAGAATGTGTGCTGAAACTGATCTCTCTTCGTTACTACTAATTCCT  
 ATTTGGATGGAATATTTTTGATT  
 TTGTGGTGGTCATTCTCTCCATTGTAGgtagaagaggtgcttttattcagttaaaggaatatagtggtaaaaatagtgt  
 tttaaaacttttagagggtgtttttcactaatcttcattcatcccaaaactcccaataaaatctaatagttccattgtt  
 tttagttttttgtccatttctctaatgtcatgtgtgcttgaatgatgtggaatacagaagaaatttatattttcagc  
 ttcatattat

64  
 exon 27 (formerly exon 24)

aatgttataacaccaataaccagtttcattttgtcacaacaacattgcagattattgcatatatacatgtacctaac  
 tgcctgttcacattttgtaaaactaatgtacttatgtaactttcatttgcctatttaagtataacaataattttgtt  
 atttgtgtattttctacagGAATGTTTCTGGCTGAAGTATAGAAAAGTATTTTGTGTCCCTACC  
 CTGTTCCGAGTGAT  
 CCGTCTTGCCAGGATTGGCCGAATCCTACGCTGTGATCAAAGGAGCAAAGGGGATCC  
 GCACGCTGCTCTTTGCTCTTGATGA  
 TGTCCCTTCTCGTGTGTTTAAACATCGGCCTCCTTCTTTTCTGGTTCATGTTTCATCTAC  
 GCCATCTTTGGGATGTCCAAT  
 TTTGCCTATGTTAAGAGGGGAAGTTGGGATCGATGACATGTTCAACTTTGAGACCTTT  
 GGCAACAGCATGATCTCGCCTGTT  
 CCAAATTACAACCTCTGCTGGCTGGGATGGATTGCTAGCACCTATTCTTAATAGTGG  
 ACCTCCAGACTGTGACCCTGACA  
 AAGATCACCTGGGAAGCTCAGTTAAAGGAGACTGTGGGAACCCATCTGTTGGGATT  
 TCTTTTTTGTGAGTTACATCATC  
 ATATCCTTCTCGTGTGTGGTGAACATGTACATCGCGGTATCCTGGAGAACCTTCAGT  
 GTTGCTACTGAAGAAAGTGCAGA

GCCTCTGAGTGAGGATGACTTTGAGATGTTCTATGAGGTTTGGGAGAAGTTTGATCC  
CGATGCGACCCAGTTTATAGAGT  
TTGCCAAACTTTCTGATTTTGCAGATGCCCTGGATCCTCCTCTTCTCATAGCAAAACC  
CAACAAAGTCCAGCTCATTTGCC  
ATGGATCTGCCCATGGTGAAGTGACCGGATCCACTGTCTTGACATCTTATTGCTT  
TTACAAAGCGTGTGTTGGGTGA  
GAGTGGAGAGATGGATGCCCTTCGAATACAGATGGAAGAGCGATTTCATGGCATCAA  
ACCCCTCCAAAGTCTCTTATGAGC  
CCATTACGACCACGTTGAAACGCAAAACAAGAGGAGGTGTCTGCTATTATTATCCAGA  
GGGCTTACAGACGCTACCTCTTG  
AAGCAAAAAGTTAAAAAGGTATCAAGTATATACAAGAAAGACAAAGGCAAAAGAAT  
GTGATGGAACACCCATCAAGAAGA  
TACTCTCATTGATAAACTGAATGAGAATTCAACTCCAGAGAAAACCGATATGACGCC  
TTCCACCACGTCTCCACCCTCGT  
ATGATAGTGTGACCAAAACCAGAAAAAGAAAAATTTGAAAAAGACAAATCAGAAAA  
GGAAGACAAAGGGAAAGATATCAGG  
GAAAGTAAAAAGTAAAAAGAAACCAAGAATTTTCCATTTTGTGATCAATTGTTTACA  
GCCCCTGATGGTGTGTTTGT  
GTCAACAGGACTCCACAGGAGGTCTATGCCAACTGACTGTTTTTCAAATGTATA  
CTTAAGGTCAAGTGCCTATAACAA  
GACAGAGACCTCTGGTCAGCAAACTGGAAGTCAAGTAACTGGAGAAATAGTATCGA  
TGGGAGGTTTCTATTTTCAACAC  
AGCTGACACTGCTGAAGAGCAGAGGGCGTAATGGCTACTCAGACGATAGGAACCAAT  
TTAAAGGGGGGAGGGAAGTTAAAT  
TTTTATGTAAATTCACATGTGACACTTGATAATAGTAATTGTCACCAGTGTTTATGT  
TTTAACTGCCACACCTGCCATA  
TTTTTACAAAACGTGTGCTGTGAATTTATCACITTTTCTTTTAAATTCACAGGTTGTTTA  
CTATTATATGTGACTATTTTT  
GTAAATGGGTTTGTGTTTGGGGAGAGGGATTAAAGGGAGGGAATTCTACATTCTCT  
ATTGTATTGTATAACTGGATATA  
TTTTAAATGGAGGCATGCTGCAATTCTCATTCACACATAAAAAAATCACATCACAAA  
AGGGAAGAGTTTACTCTTTGTTT  
CAGGATGTTTTAGATTTTTGAGGTGCTTAAATAGCTATTTCGTATTTTTAAGGTGCT  
CATCCAGAAAAAATTTAATGTG  
CCTGTAAATGTTCCATAGAATCACAAAGCATTAAGAGTTGTTTTATTTTACATAACC  
CATTAAATGTACATGTATATAT  
GTATATATGTATATGTGCGTGATATACATATATATGTATACACACATGCACACACA  
GAGATATACACATACCATTACAT  
TGTCATTACAGTCCAGCAGCATGACTATCACATTTTGTATAAGTGTCTTTGGCAT  
AAAAATAAAATATCCTATCAGT

CCTTTCTAAGAAAGCCTGAATTGACCAAAAAACATCCCCACCACCACCTTTATAAAAGTT  
 GATTCTGCCTTATCCTGCAGTAT  
 TGTTTAGCCATCTTCTGCCTCTTGGTAAGGTTGACATAGTATATGTCAATTTAAAAAAT  
 AAAAGTCTGCTTTGTGAAATAGT  
 AATTTTACCCAGTGGTGCATGTTTGAGCAAACAAAAATGATGATTTAAGCACACTAC  
 TTATTCATCAAAATATGTACCAC  
 AGTAAGTATAGTTTGCAAGCTTCAACAGGTAATATGATGTAATTGGTTCATTATA  
 GTTTGAAGCTGTCTACTGCTGCAT  
 GTTTATCTTGCCTATGCTGCTGTATCTTATTCTTCCACTGTTCCAGAAAGTCTAATATG  
 GGAAGCCATATATCAGTGGTAA  
 AGTGAAGCAAATTTGTTCTACCAAGACCTCATTTCTTCATGTCATTAAAGCAATAGGTTG  
 CAGCAAACAAGGAAGAGCTTCTT  
 GCTTTTATCTTCCAACCTTAATTGAACACTCAATGATGAAAAGCCCGACTGTACA  
 AACATGTTGCAAGCTGCTTAAAT  
 CTGTTTAAAAATATATGGTTAGAGTTTTCTAAGAAAATATAAACTGTAAAAAGTTC  
 ATTTTATTTTATTTTCAGCCTT  
 TTGTACGTAAAATGAGAAATTTAAAGTATCTTCAGGTGGATGTCACAGTCACTATTG  
 TTAGTTTCTGTTCCTAGCATTT  
 TAAATGAAGCACTTCACAAAAATAAGAAGCAAGGACTAGGATGCAGTGTAGGTTTC  
 TGCTTTTTTATTAGTACTGTAAAC  
 TTGCACACATTTCAATGTGAAACAAATCTCAAAGTGAATGTTTATTGCTTTTC  
 AATAGTAATGCCTTATCAITTA  
 AAGAGGCTTAAAGAAAAAAATCAGCTGATACTCTTGGCAATTGCTTGAATCCAA  
 TGTTTCCACCTAGTCTTTTATTC  
 AGTAATCATCAGTCTTTTCCAATGTTTGTTTACACAGATAGATCTTATTGACCCATAT  
 GGCCTAGAACTGTATCAGATA  
 TAATATGGGATCCCAGCTTTTTTCTCTCCCAAAAACCAGGTAGTGAAGTTATATT  
 ACCAGTTACAGCAAAATACTTT  
 GTGTTTCACAAGCAACAATAAATGTAGATTCTTTATACTGAAGCTATTGACTTGTAG  
 TGTGTTGGTGAATGCATGCAGGA  
 AGATGCTGTTACCATAAAGAACGGTAAACCACATTACAATCAAGCCAAAGAATAAA  
 GGTTGCTTATGTATATGTATTTa  
 attgttcttctttctatcttggaaatgccatttaaaggtagatttctatcatgtaaaaataatctatctgaaataca  
 aatgtaaagaacacacattta

accatagagtgaaatcagaacaggaagcggaggcataagcagagagattctggaaggtctcttgttttctatcca  
 cagagaagaagaaaaaaattgtaactaattgttaacctctggtgcaaaaaaaaaaaaaaaagctgaaca  
 gctgcagaggaagacagcttataccctaaccatcttggatgctggctgtttgtagctgtaattcataaggctctgitt  
 atcagagattatggagcaagaaaactgaagcccaagccacatcaaggtttgacagggaatgagataacctgcaaggattcat  
 agtagagtgttacttgggaagggcaagaatctctcttagggatattgaagaataatgagataattcacagaagg  
 gacctggagctttccggaaggggtgctgtgactatctaagggaagagctgagagctcggaaactagcctatctccga  
 ggacttagagacacagtagtggaaattcaacgagagctttttactttttgaccaagattcaaatctttattccag  
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 VFMTLSNPPDWTKNVEYT  
 FTGIYTFESLIKILARGFCLEDFTLRDPWNWLDIFSIVVMAYVTEFVDLGNVSALRTRFV  
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 SNGTFVNVMTSTFNWKDIYG  
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 QAVAAAASARDFSGIGGLGE  
 LLESSEASKLSSSAKEWRNRKRRRQREHLEGNNGERDSFPKSESESDSVKRSSFLS  
 MDGNRLTSDKKFCSPHQSL  
 SIRGSLFSRPNRSKTSIFSFRGRAKDVGSENFADDEHSTFEDSESRRDSLFPVPHRHGERR  
 NSNGTTTETEVRKRRLLSSY  
 QISMEMLEDSSGRQRAVSIASILTNTMEELESERQKPCPCWYRFANVFLIWDCCDAWLK  
 VKHLVNLIVMDPFFDLAITC  
 IVLNTLFMAMEHYPMTEQFSSVLTGVLNVTGIFTAEMVLKIIAMPYFFYFQEGWNIFD  
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 FHSFLIVFRVLCGEWIETMWDCEVAGQTMCLIVFMLVMVIGNLVVLNLFALLSSFS  
 SDNLAATDDDNEMNNLQIAVG  
 RMQKGIDYVKNKMRECFQKAFRKPKEVIEHEGNKIDSCMSNNTGIEISKELNYLRDGN  
 GTTSGVGTGSSVEKYVIDEND  
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 GEQATEPEEDLKPEACF  
 TEGCIKKFPFCQVSTEEGKGKJWWNLRKTCYSIVEHNWFETFIVFMILLSSGALAFEDIYI  
 EQRKTIKTMLEYADKVFTY  
 IFILEMLLKWVAYGQFYFTNAWCWLDFLIVDVSLVSLVANALGYSELGAIKSLRTLRA  
 LRPLRALSRFEGMRVVVNALV  
 GAIPSIMNVLLVCLIFWLIFSIMGVNLFAGKFYHCVNMTTGNMFDISDVNNLSDCQALG  
 KQARWKNVKNVFNFDNVGAGYLA  
 LLQVATFKGWMDIMYAAVDSRDVVKLQPVYEENLYMYLYFVIFIFIHGSFFILNLFIGVIID  
 NFNQQKKKFGGQDIFMTEEQ  
 KKYNNAMKKLGSKKPQKPIPRPANKFQGMVDFVTRQVFDISIMILICLNMVMTMMVET  
 DDQGYMTLVLSRJNLVFVIFL  
 TGEFVLKLVSLRHYFTIGWNIFDFVVVLSIVGMFLAEMIEKYFVSPTLFRVIRLARIGRI  
 LRLIKGAKGIRTLFLFAM

MSLPALFNIGLLFLVMFIYAIFGMSNFAYVKKEAGIDDMFNFETFGNSMICLFQITTSAG  
WDGLLAPILNSAPPCDDPD  
TIHPGSSVKGDCGNPSVGIFFFVSYIIISFLVVVNSYIAVILENFSVATEESAEPLEDDFEM  
FYEVWEKFDPDATQFIE  
FSKLSDFAAALDPPLLIAPNKVQLIAMDLPMVSGDRIHCLDILFAFTKRVLGESGEMDA  
LRIQMEDRFMASNPSKVSYE  
PITTTLKRKQEEVSAIIQRNFRFCYLLKQRLKNISSNYNKEAIKGRIDLPKQDMIIDKLN  
NSTPEKTDGSSSTTSPPS  
YDSVTKPDKEKFEKDKPEKESKGKEVRENQK.

Seq. Id. No. 67 (cont'd)

MAQALLVPPGPESFRLFTRESLAAIEKRAAEKAKKPKKEQDNDNENKPKPNSDLEAGK  
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 VFMTLSNPPDWTKNVEYT  
 FTGIYTFESLIKILARGFCLEDFTLRDPWNWLDFSVIVMAYVTEFVSLGNVSALRTRFVL  
 RALKTISVIPGLKTIVGAL  
 IQSVKKLSDVMILTTFVCLSVFALIGLQLFMGNLRNKLQWPPSDSAFETNTTSYFNGTMD  
 SNGTFVNVMTSTFNWKDYIG  
 DDSHFYVLDGQKDPLLCGNGSDAGQCPEGYICVKAGRPNPYGYTSFDTFSWAFLSLFRL  
 MTQDYWENLYQLTLRAAGKTY  
 MIFFVLVIFLGSFYLVNLILAVVAMAYEGQNQATLEEAEQKEAEFQQMLEQLKKQEEA  
 QAVAAASAAASRDFSGIGGLGE  
 LLESSEASKLSSKSAKEWRNRKRQRREHLEGNNGGERDSFPKSESESDSVKRSSFLFS  
 MDGNRLTSDKKFCSPHQSL  
 SIRGSLFSPPRRNSKTSIFSFRGRAKDVGSENDFADEHSTFEDSESRRDSLFPVPHRHGERR  
 NSNGTTTETEVKRRLSSY  
 QISMEMLEDSSGRQRAVSIASILTNTMEELEESRQKCPWCYRFANVFLIWDCCDAWLK  
 VKHLVNLIVMDPFDLAIIC  
 IVLNTLFMAMEHYPMTEQFSSVLTVGNLVFTGIFTAEMVLKHAMDPYYFYFEGWNIFD  
 GIIVLSLMELGLSNVEGLSV  
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 CVCKINDCTLPRWHMND  
 FHSFLIVFRVLCGEWIETMWDCMEVAGQTMCLIVFMLVMVIGNLVVLNLFALLSSFS  
 SDNLAAATDDDNEMNNLQIAG  
 RMQKGIDYVKNKMRECFQKAFFRKPKEVIEHEGNKIDSCMSNNTGIEISKELNYLRDGN  
 GTTSGVGTGSSVEKYVIDEND  
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 GEQAEPEEDLKPEACF  
 TEGCIKKFPFCQVSTEEGKGKIWWNLRKTCYSIVEHNWFETFIVFMILLSSGALAFEDIYI  
 EQRKTKITMLEYADKVFTY  
 IFILEMLLKWVAYGFQTYFTNAWCWLDLIVDVSLVSLVANALGYSELGAIKSLRTLRA  
 LRPLRALSREFEGMRVVVNALV  
 GAIPSIMVLLVCLIFWLIFSIMGVNLFAGKFYHCYVNMTTGNMFDISDVNNLSDCQALG  
 KQARWKNVKVNFNDNVGAGYLA  
 LLQVATFKGWMIDIMYAAVDSRDVQLQPVYEENLYMYLYFVIFIFIQSFFTLNLFIGVIID  
 NFNQKKKKFGGQDIFMTEEQ  
 KKYYNAMKKLGSKKPQKPIPRPANKFQGMVFDFVTRQVFDISIMILICLNMVMTMMVET  
 DDQGYMTLVLSRINLVFIVLF  
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 LRLIKGAKGIRTLFALM



MSLPALFNI GLLFLVMFIYAIFGMSNFAYVKKEAGIDDMFNFETFGNSMICLFQITTSAG  
WDGLLAPILNSAPPD CDPD  
TIHPGSSVKGDCGNPSVGIFFFVSYIIISFLVVVNSYIAVILENFSVATEESAEP LSEDDFEM  
FYE VWEKFDPDATQFIE  
FSKLSDFAAALDPPLLIAKPNKVQLIAMDLPMVSGDRIHCLDILFAFTKRVLGESGEMDA  
LRJQMEDRFMASNPSKVSYE  
PITTT LKRKQEEVSAAIQRNFR CYLLKQRLKNISSNYNKEAIKGRIDLPKQDMIIDK LNG  
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YDSVTKPDKEKFEKDKPEKESKGKEVRENQK.

Seq. Id. No. 68 (cont'd)

aatgattattttaattgatgataaacigttaataaaaatcatagttgttctcctaagtagatatgaaggcagatgaa  
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 ATAAGCA  
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 AAATTGTGTAATAAATTTGTAACCT  
 CTGTGGTCAAAAAAAAAAAAAAAAAAAAAAGCTGAACAGCTGCAGGGAAGACAC  
 GTTATACCCTAACCATCTTGGATGC  
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**Seq. Id. No. 69 - 70**

71

exon 01c (formerly exon 00c)

gatatataaattttatgtattttaataaattataatgtgcataataatcattaataatataatccacaccaaggca  
 tcaagtaagaattatttttaagctcgtcctaagtgaataataaattatgaagaactctgtataaagctcacagag  
 tacaagaaaaggaggagaaaaaagttaaaagagaactgcgaagaactatgagggaatttccaacacagcaaaattgtcattga  
 agccatgagaactctactactaacttcttatttctcagcctaccacaataatgggcaaaccttaattctctgtcag  
 GGGAAAAGCTGAGAGTCTGGAACTAGCCTATCTTCCGAGGACTTAGAGACAACAGT  
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 TACTTTCTTTTGACCAAGATTCAAATTTCTTTATTCAGCCCTTGATAAGTAAATAAGA  
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 ggtgatttcacattagatattttaaacctaattgttatttctaaacaaaaccaaccaggagaatccaattaagtaaaa  
 tgtatgtattataaattagctatttccactctgaaaaggcagccatttctgtgtgagggtcccaatgatactga  
 ggctgagacaggttagatgatacaggcattacattagcagcagactcaactaaccag

72

exon 02 (formerly exon 01)

acaaagtatgaaaaggcggggggcagatgcagaataatgaagcaattttattgacaaacthactgacattactctt  
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 tgtatgtagacttaaaagcatgacttaattgtttatagctttaaaaagttactaaagaatgacatttgggtgatgtct  
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 GAAAGCTTCCGCCTTTTACTAG  
 AGAATCTCTTGTCTATCGAAAAACGTGCTGCAGAAGAGAAAGCCAAGAGCCCA  
 AAAAGGAACAAGATAATGATGATG  
 AGAACAAACCAAGCCAAATAGTGACTTGAAGCTGGAAAGAACCTTCCATTTATT  
 TATGGAGACATTCCTCCAGAGATG  
 GTGTCAGAGCCCCCTGGAGGACCTGGATCCCTACTATATCAATAAGAAAgtagattgtattta  
 gacttctaataatct  
 ttaatgaaactcttaactgtaataacttttctgggccttatatacagcatcacaattttcttctgttaaagattttat  
 aatacttctactgtcacttattttatcacaataataaacaacatttataagaatgaagctcaagattgggtac  
 agtcaggaaatgaatagatgaatgatttctaactacagtgataattcagatagtcacaaa

73

exon 03 (formerly exon 02)

tgaacyatatgttaatttaaacatctaactgtttgtatgtatatacaactggtttaaacaccagtttgaaca  
 aacaattcyatttttaaaaggtcctcatgtatgaagctccttaaaagccatgtctaattttagtaatttactc  
 gtatttctgtttcagACTTTTATAGTAATGAATAAAGGAAAGGCAATTTCCCGATTTCAGTGCC  
 ACCTCTGCCITGTATA  
 TTTAACTCCACTAAACCTGTTAGGAAAATTGCTABSAAGATTTTGGTACATTCCatate  
 cttttaatgtgaattgccta  
 aatgclatttcaacagttgatttttaagaaaatgtcagttatattttcaagtatctgtaaaatttctgtgagattaatg  
 gtaacattgttagtttaattcattttatgcatt

74  
exon 04 (formerly exon 03)

gagtgaccacagccatcacagccttgaagttcttatttatctattgtttaaacaataataattatcca  
cagtttttgcatcgataaacctttttgtgtttggaatcattataaatggccatgtaacctactaacattattcct  
taactataatctacTTATTTCAGCATGCTTATCATGTGCACTATTTTGACCAACTGTGTATTTA  
TGACCTTGAGCAACC  
TCCTGACTGGACAAAGAATGTAGAgtaagtaggaataactctgggaatgagaaatgcacactcaaatctctagcaatc  
tccttgtggatagccctgactatgggttcactctctctaaagaaagtatttcaataatgcagccgtaaggga  
ggtcttcggggagctattctctacgaggtaagtatttcccaaaa

75  
exon 05 (formerly exon 04)

aaaattaccatttgyggcttcattacattctatcagataactctgcgtagtaggtcaactagatgattatccat  
aagatcacatgaaactattattctaaacccaatagttaaaccagattagattcctaaagaatataatttcttcagtt  
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ggcttggatgtttttcctagGTACACATTCCTGGAATCTATACCTTTGAGTCACTTATAAAAAATC  
TTGGCAAGAGGGTT  
TTGCTTAGAAGATTTTACGTTTCTTCGTGATCCATGGAACCTGGCTGGATTTCAGTGTG  
ATTGTGATGGCgtgagtaact  
tgaaaattgataagcgcaaggagtgaaaatagtcatagtacaaacaggtctttgtgtcataattaaatgtagagct  
ttctgttagtcaagtaactatattgggtgtgtatttcagaatacatattagaatacatattgcaatgtaaatatatac  
cagtaaatgatcaataaatgggttatctcatgcatatagctttctcttcatcaaat

76  
exon 06N (formerly exon 05N)

attgttaaactcacaggcctctatgtgccaaaccagcattaaagtcctatttagtataaactttgccaaaactatcag  
taactctgatttaattctgcagGTATGTAAACAGAAATTTGTAAGCCTAGGCAATGTTTCAGCCCTTCG  
AACTTTCAGAGTC  
TTGAGAGCTCTGAAACTATTTCTGTAATCCCAAGtaagaagaactgtgtgaaggtagtagggcccttata  
tctccaac  
tttctgtgtgtattgtgtgtgtgtgaactccctattacag

77  
exon 06A (formerly exon 05A)

gtaagaagaaactgggtgaagtagtaggcccttatatctccaactttctgtgtgtattgtgtgtgtgtgaact  
ccctattacagATATGTGACAGAGTTTGTGGACCTGGGCAATGTCTCAGCGTTGAGAACAT  
TCAGAGTTCTCCGAGCAC  
TGAAAAACAATTTTCAGTCAITCCAGgtgagagctagggtlaaacaccagggttgaacttaattatgagttgaaatcaatt  
tataatgacttacagcattagcctgtgtctattattacagttcatcccggtaataatgccaaatgatgttcaatgtc  
agtttagctcctaaaatttataaattacatcgctattataaagtcagcccttgatttaacagaaaattgcatgagac  
atctcaaaaaatgtaatttgggcctcttgcgctctctctctcttttctaccatggcttactaacagatttgg  
attttaccattcgtgcagatgtattcaaaaatg

78

exon 07 (formerly exon 06)

aaactctgactagatatttaacccttcataattgaattccagcaagcacactgttcatgtgtaaaatctgctgttc  
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 ATTTGTTGGGGGCCCTGATCCAGTCGGTAAAGAAGCTTTCTGATGTGATGATCCTGACT  
 GTGTTCTGTCTGAGCGTGTTC  
 TCTCATTTGGGCTGCAGCTGTTTCATGGGCAATCTGAGGAATAAATGTTTGCAGTGGCC  
 CCAAGCGATTCTGCTTTTGAAA  
 CCAACACCACCTTCTACTTTAATGGCACAATGGATTCAAATGGGACATTTGTTAATG  
 TAACAATGAGCACATTAACTGG  
 AAGGATAACATTGGAGATGACAgtaagaagtattacattatgtaacctagtggtgctgaatgaatttcaactataa  
 tagt

79

exon 08 (formerly exon 07)

tgagactgtgggtgtacagccaccttgtataaactgaaatagccaactctgatttactaataactaatgtgaata  
 ggattaatgaataaaatgggtttttttgtattacagGTCACCTTTTATGTTTTGGATGGGCAAAAAGACC  
 CTTTA  
 CTCTGTGGAAATGGTTCAGATGCAGGgtaagaacataatataatttttaagatatagaactcttgcgaaaaaaaaa  
 gtaggtaggaaacaactacatggttatgtgtacccctaccatgtatgcaataaagagcagtgctgctccccaggaa  
 gtgccttgcctaccgattgccactggctcctaactcacagaattaaaaattcccttgtgaagaccttcc  
 caaaaattcacagtgtaagatgttctaaatgatgctccaatgtgtgaaggccagagctgcttctgtgtacatcta  
 tcagagctgttaggaaa

80

exon 09 (formerly exon 08)

aaagagtaaaaatatgglaaggtcagagccaaaagtgtgtgtgtgctagctttctgccattctaaatgtctrwaaawatt  
 tatttgatctaaattttctatcggtcttctatgtgaatttcacgtgataagtttcacgggtgggcaatcaccataagtgt  
 tctgaaattaaagcaagataaattcgtcacagatagcagctttgggtttgaaaattcctaagaatcaataaattgaaa  
 ttgctgaatttctaaactgacctaccctccatttctctcttatagCCAGTGTCAGAAAGGATACATCTGTGTGAAGG  
 CTGGTTCGAAACCCCAACTATGGCTACACAAGCTTTGACACCTTTTAGCTGGGCTTTCC  
 TGTCTCTATTTGACTCATGACT  
 CAAGACTACTGGGAAAATCTTTACCAGTTGtaaggccaatgagcatgcataactttattttatagacatgtatga  
 aatgaaagcataggctgagt

81

exon 10 (formerly exon 09)

agctaattagctactgactctactggttaactgagatatttattgggacattatactaaaactgtaggaatt  
 atccccatttccctagACATTACGTGCTGCTGGGAAAACATACATGATATTTTTTGTCTGGT  
 CATTTTCTTTGGGCTC  
 ATTTTATTTTGGTGAAATTTGATCCTGGCTGTGGTGGCCATGGCCTATGAGGGGCAGAA  
 TCAGGCCACCTTGGGAAGAAGCAG  
 AACAAAAAGAGGCCGAATTTTCAGCAGATGCTCGAACAGCTTAAAAAGCAACAGGAA  
 GAAGCTCAGgtactgagtgataaa  
 mgcaagatttatcattattatmttagtttctaagtagaatagtgtatactatagagggtagattggaactgcttt  
 tcattttatatmggcattgcttagacac

82

exon 11 (formerly exon 10a)

tgcaaacgtgtttcaagctctgtgttctaataatgctggtgtgttttatgacagGCAGTTGCGGCAGCATCAGCTG  
 CTTCAGAGATTTTCAGTGGAATAGGTGGGTTAGGAGAGCTGTTGGAAAGTTCCTCAG  
 AAGCATCAAAGTTGAGTCCAAA  
 AGTGCTAAAGAATGGAGGAACCGAAGGAAGAAAAGAAGACAGAGAGAGCACCTTG  
 AAGGAAACAACAAAGGAGAGAGAGA  
 CAGCTTTCCCAATCCGAATCTGAAGACAGCGTCAAAAGAAGCAGCTTCCTTTTCTC  
 CATGGATGGAAACAGACTGACCA  
 GTGACAAAAAATCTGCTCCCTCATCAGgtatgttttactaagtgctctgtttctttgctatgctgcttt  
 tagttttgtattgtttgtgacactttgtactactgtactcagttgaggagagggaactaacatttaatatag  
 ttgtttaa

83

exon 12 (formerly exon 10b)

gtgaagactaaatgaagtgtgtgtatacttagtaaatgcaaatcagtatgttagtcagaaaaacactttgtactta  
 aatttgcitttaataaaatatacaaaatataatgtgtctctataaatttgattatccatgtttaaggccaagataacta  
 actccaaagaaaacagatcccttaataataatattataaataaattgcgttttccccaccaccaatccattcccttc  
 cttttgtcttctgcagTCTCTCTTGAGTATCCGTGGCTCCCTGTTTTCCCAAGACGCAATAG  
 CAAAACAAGCATTT  
 TCAGTTTCAGAGGTTCGGGCAAAAGGATGTTGGATCTGAAAATGACTTTGCTGATGATG  
 AACACAGCACATTTGAAGACAGC  
 GAAAGCAGGAGAGACTCACTGTTTGTGCCGCACAGACATGGAGAGCGACGCAACAG  
 TAACgttagtcaggccagtagtc  
 atccagatggtgtccagggtccagcaaatgggaagatgcacagcactgtgattgcaatggtgtgtttccttggtg  
 ggtggaccttcagctctaactcacctactgggcaacttccccagaggtgataatagatgacctagctgactgacatt  
 attcaccaattg

84  
 exon 13 (formerly exon 10c)

gaattctcctaaaggctactacctgtgatacttttttaaaaaaaacgtttataacttagcaataatcaatattttat  
 tcttgaattcttacctggaaaattgcatgtagcatgattgcaagaatgctatgtgtgtgttattactattggga  
 agagtggttgtagccatcatgatttggttgcagGGCACCACCCTGAAACGGAAGTCAGAAAAGAGAAGG  
 TTAAGCTCTT  
 ACCAGATTTCAATGGAGATGCTGGAGGATTCTCTGGAAGGCAAAGAGCCGTGAGC  
 ATAGCCAGCATTTCTGACCAACACA  
 ATGGAAGGtaagagcagggtcatggaacagccaactttctgtgattatgcttltgtaactatctctttcatagaa  
 ttactgaagtcgtttaccagatcgaactatataatagacctaagaatgtgatatagggtacattatcacattgntta  
 caaaactaattatggccttattcttttgacttgggtccttaccttactgcagagtgatatttcaacactgatattat  
 atcaat

85  
 exon 14 (formerly exon 11)

tagtcattttaaaagcaaaatataaattcaaaagtgcttattttctgtattcaaaagagaaaaagtcgactatagac  
 attttaattaaacatttttctgaaaatatttaagggtggttcttctcaagtttcttaagtaaatgaaacttattttcaa  
 atataagcatcaatttttcttaataatgtaaaatctactagcaataaataactatttttgtgttatttactatcttcc  
 ttgtattgtccctccagAACTTTGAAGAATCTAGACAGAAATGTCCGCCATGCTGGTATAGATT  
 GCCAATGTGTTCTTG  
 ATCTGGACTGCTGTGATGCATGGTTAAAAGTAAACATCTTGTGAATTTAATTGTT  
 ATGGATCCATTGTGTGATCTTGC  
 CATCACTATTTGCATTGTCTTAAATACCCCTCTTTATGGCCATGGAGCACTACCCCATG  
 ACTGACGAATTCAGTAGTGTT  
 TGACTGTAGGAAACCTGtaagtagacttgaagttaacttatttacttggtagatgtgggagagatagaccaaaagggaa  
 agatgtattttgtctgttgaacccaaaaattatctcttctctcatagaaagaaatcatcgaaggaattacaggg  
 aatctcagagatacagccctaaaactcaactgggtatgaatgctgattgttaggccaatgtctgtctgattgatcatggt  
 gtcttaccagttgtaacgtctcaaat

86  
 exon 15 (formerly exon 12)

ctaaagacttgaattgattgtcactattctctcacttttaaattttagataattttattctgtctaatgttctctttat  
 aaattcgtgtagcatcagtggtttcagtcgttctgtagtagtctgatctcaatttttagGTCTTTACTGGGATT  
 TACAGCAGAAATGGTTCTCAAGATCATTTGCCATGGATCCTTATTACTATTNCCAAGAA  
 GGCTGGAATATCTTTTGA TGAA  
 TTATTGTACGCCTCAGTTTAATGGAGCTTGGTCTGTCAAAATGTGGAGGGATTGTCTGT  
 ACTCGCATCATTCAGACTGta  
 tctattatataatccctgtcgtctcattggcacacacttattttgaaattgaatcaatgtatattatataattatta  
 attttaattttaaattatcatcaatatgtgacattctaaagaaacatgtaaacatccycttttaagactaaacattttct  
 aagaatgatgaagcattcaaaaactctataatgattaggtatgtagggcacattagaaaactacaagtactttctaa  
 aactgtgttttaagttatgaagcttttttggccctacagtcgtgaagatacgcacaaataaaatttagaccctgtaa  
 ttttagcttttttaaacctact

87  
 exon 16 (formerly exon 13)

tatttttttttgcacctaataatgatattatgaccagattacaattctaattgttaacactatitttttgcgattg  
 aaattgaatcagttcaglatattttgagttttacatctaccacgtgtggttctatgataccacatactaataaataat  
 gtctaaattatattatgattactactaacagcatcttttctacttgattacagCTTAGAGTTTTCAAGTTGGCAAAATCC  
 TGGCCCACTAAATATGCTAATTAAGATCATTTGGCAATTCTGTGGGGGCTCTAGGA  
 AACCTCACCTTGGTGTGGCCAT  
 CATCGTCTTCATTTTGTGTGGTGGCGCATGCAGCTCTTTGGTAAGAGCTACAAAGA  
 ATGTGTCTGCAAGATCAATGATG  
 ACTGTACGCTCCACGGTGGCACATGAACGACTTCTTCCACTCCTTCCTGATTGTGTT  
 CCGCGTGTCTGTGTGGAGAGTGG  
 ATAGAGACCATGTGGGACTGTATGGAGGTCGCTGGCCAAACCATGTGCCTTATTGTT  
 TTCATGTTGGTCATGGTCATTGG  
 AAACCTTGTGgtatgtatgtatcacaatgtcacaataagaacaagagcagacagtagctaggaacgtggccagatgt  
 agtaaacatactctgtttatagtagtggcctagactgaaatccccctatttagcactcagagaataagcaagttatt  
 aacttctcctggcctcgtgttccatttt

88  
 exon 17 (formerly exon 14)

ccttagagcaggatatttagctcctttaagagtgtgtgacttagacatggcatctgaaatatagtaagcattcaataaac  
 atttgtgaaataatttagcaaaagatctatgagttcccttttaggctgtattttaaagcatttcaattataaral  
 aggcattttcttttttcttttagGTTCTGAACCTCTTTCTGGCCTTATTGTTGAGTTCATTTAGCTCA  
 GACAACCTTG  
 CTGCTACTGATGATGACAATGAAATGAATAATCTGCAGATTGCAGTAGGAAGAATG  
 CAAAAGGGAATTGATTATGTGAAA  
 AATAAGATGCGGGAGTGTTTCCAAAAAGCCTTTTGTGAAAAGCCAAAAAGTTATAGA  
 AATCCATGAAGGCAATAAGATAGA  
 CAGCTGCATGTCCAATAATACTGGAATTGAAATAAGCAAAGAGCTTAATTATCTTAG  
 AGATGGGAATGGAACCAAGT  
 GTGTAGGTACTGGAAGCAGTGTGAAAAATACGTAATCGATGAAAATGATTATATGT  
 CATTCATAAAACAACCCAGCCTC  
 ACCGTACAGTGCCAATTGTGTTGGAGAGTCTGACTTTGAAAACCTAAATACTGAA  
 GATTTCAGCAGTGAAGTCAAGT  
 AGAAGAAAGCAAAGGAGtaagggaatccttttaatttttgttccatttctatgataaccatgtactacagttatttac  
 tattttcattgtcctatagcattacgaaxaagcaatgattgaagt

89  
 exon 18 (formerly exon 15)

taattatttagtacaataatgatcagtaagtctaatagagtttaaatgctatcactacattttttcacacaatgacacagt  
 atttcccgatttagttaaataaaagggggaaaaacacatctttgaaatgggaattttgtttccagAAATTAATGCAACCG  
 CTCATCTGAAGGAAGCACAGTTGATGTTGTCTACCCCGAGAAGGTGAACAAGCTG  
 AAACCTGAACCCGAAGAAGACCTTA  
 AACCCGAAGCTTGTTTTACTGAAGtaaacagcctctgatgttaataatacatctccctgttctttacggagactg  
 aatatgcctcatttaaaaaaaaaatttagcaaacagggtgtgtgtgcttatgacctgaaccccaattttggaggct  
 acggttaggaggattgctgacccaggagtttagaccacccctgggaatgtagtaaggcttgcctctac



90  
exon 19 (formerly exon 16)

gaattctaagtagctggctgagtatataagctgagataattcattatacaggaggagctgacgataactaggaaat  
gaaggagatggttacctatgaaatgattacctggaagtggagtgagggaagggaagaaagttaatttttcttatta  
agattaaaatataatttttaataactatatttsatttttagGATGTATTAAAAAGTTCCATTCTGTCAAGTAAGT  
ACA  
GAAGAAGGCCAAAGGGAAGATCTGGTGAATCTTCGAAAAACCTGCTACAGTATTGT  
TGAGCACAACCTGGTTTGAGACTTT  
CATTTGTGTTATGATCCTTCTCAGTAGTGGTGCATTGgtaagtgaatgcatattgcaagaatcagattct  
ggtgaaat  
agtttattctccaaataccagatgcaaacactgagcttcagaatcaaaagaaaggcatatctgtcttgcagagct  
tggcaccacaaggttaacgatgcaaaatcagttctgaacaaatcagaccatgaaacagccagatggaatttctcatct  
ggtgtttatctaacagatgttttctcactgagacaacatttgcagagacattctgtaacca

91  
exon 20 (formerly exon 17)

ctagtagtcttttagattgtctcatgttcaatgtttatgtaaaatatacaataatcaaaatattcttttactacta  
ttatactaagcaatttttcaaataattagaagaagcaagccatttaagtataataataatattttgattcatagGCCTT  
TGAAGATATATACATTGAACAGCGAAAGACTATCAAAACCATGCTAGAATATGCTG  
ACAAAGTCTTTACCTATATATTCA  
TTCTGGAAATGCTTCTCAAATGGGTGCTTATGGATTTCAAACATATTTCTACTAATGC  
CTGGTGCTGGCTAGATTCTTG  
ATCGTTGATgtaagtattttaagtgattttataaaattgtttttaaaggaggaagttgacattcatatgtttctgt  
tattaaaactttcactaataatgacalaattatgcagttatttaacaaaactgtaacatagcaacaatgaggaatc  
tcattgggaagagtagagagggtcctaacaatgggcagtg

92  
exon 21 (formerly exon 18)

ctaactaataattlaagcacacatccatgaaggatctggcattgaaactaatcctgaattatcatgtgtatagccacaag  
ttgaaaaaggggtccatggtataaaatctaaactggagatattgacacgtgttgataaatatggccaagtattctggtt  
cattgtttaaaaaaagcaatagatgagatgagactggcaatataagatgaccccatatgtggaagatgaagtggc  
aaggtatgtccaaattagttatttagtgcattaaatagataccacacctataacctcagtcacacagtttatttctgg  
tgaactaatttaattttttctttgttagGTTTCTTTGGTTAGCCTGGTAGCCAATGCTCTTGGCTACTCA  
GAACTCG  
GTGCCATCAAATCATTCAGGACATTAAGAGCTTTAAGACCTCTAAGAGCCTTATCCC  
GGTTTGAAGGCATGAGGgtaaga  
agaatagcacctctaattattcatgtcaaaaattacatgtaggtaatgatttagatagaaaagggtgccatctctctg  
atatttattcaatagaattacagaattagaagc

93

exon 22 (formerly exon 19)

ccagcatacaacattttctgactccacttactataccaggttttaatgattctttcactactgtagcatattttg  
 ttctcttaaaccttagctcttttagttgtgctcattgtttgtttcttcaaatatgctagaaaaattagaagaacaa  
 ctgtgccacctagatttttattaaactcttttcaagcacatattataactaacaacaaatcattgaaggaatggttccat  
 tcaaaagggttgaagctatgttccctcgctgtctctctagGTGGTGTGTAATGCCTCTTTGTGGAGCAATCCCC  
 TCTA  
 TCATGAATGTGCTGTGGTCTGTCTCATCTTCTGGTTGATCTTTAGCATCATGGGTGT  
 GAATTTGTTTGTCTGGCAAGTTC  
 TACCACTGTGTAAACATGACAACGGGTAACATGTTTGACATTAGTGATGTAAACAAT  
 TTGAGTGACTGTCAAGGCTCTTGG  
 CAAGCAAGCTCGGTGGAAAAACGTGAAAGTAAACTTTGATAATGTTGGCGCTGGCT  
 ATCTTGCACGTGCTCAAGTGta  
 gtggctactgacgagttttgaaaaagtttcaagatgttcaaggaagattattccctgatgttcttcgtttgaatga  
 ctacactgtgacgacgtgaaaaaggttaataacacactataatcagcgtgaattgatcataaaaaagatgttaca  
 attatttataatgtattttcccttaggttgaagcttttagtattttaaagtatttataattct

94

exon 23 (formerly exon 20)

aaaggaaacaagttccagacttfaatacaaatgttttctatttcaatttattcaatctcttgatgaaatttcc  
 aatatgtacaaaaagttattgttataactgtagcagatttcatctgtttaaattgcatgttagtgaaattttat  
 gaacaattcaaatatattgtatttacagGCCACATTTAAAGGCTGGATGGATATTATGTATGCACGTGT  
 TGATTCACGAG  
 ATGtaagtatacactcaaatattattataggttctagatttcttatgttgtaattgttggttaattaaacactgataca  
 tccaaaaattctataatagaacattaatattgcataaaaaaatgaacagctgcttcaatatagatgatgcttgattaa  
 tgtgtgcctaataacaatatgtactaatatgaacg

95

exon 24 (formerly exon 21)

gtaaggcaaatgggaaaaagagaatcaagaacaatcataaaacttgcaaaccttcatttactagatcatactagtttta  
 aaaaattgtttttgtagaacaatatctcagggttaaggcaaaagtagcactgtatttaagtaacagcactcaataaattact  
 gatttagtgaagtatttatagtattttcatattttaaattttcaataatcatttagGTTAAACTTCAGCCTGTATA  
 TGAAGAAAATCTGTACATGTATTATATCTTTGTCATCTTTATCATCTTTGGGTCATTC  
 TTCACCTCTGAATCTAATTCATTG  
 GTGTCATCATAGATAAATTCACCAGCAGAAAAAGAAGataagtattcttttagcttttaccctttcttcatct  
 ggggttc  
 gtctgttaatacagccaataaccagaatactgtgtgcatgacagactaaatcatgtttattattttcagttgcc  
 catgtgttatttaagctgcagggaattccagcctctagtcagttgctcctctcaagtttatctatlgatagctttctg  
 acccaaaaatgtgtccactccttcgaccatccaacgggtctccagtgcttagcttggtctacagagccttcag

96  
 exon 25 (formerly exon 22)  
 acccttgtgctactctttaacatagatataatcaaattagatcctgtagcgcacagagttttatgtacgtaaggatttt  
 gcataaatatgaatattcagaatttcacataaatgggaaagcaggatataatgtatagtaggagataaatccactt  
 aaaaattagaaaagattaaaggaaagacaaatatttttggtaaagtactattggaacacagaalgtgaaccagttttat  
 actatgtctttacTTTGGAGGTCAAGACATCTTTATGACAGAGGAAACAGAAAAAATTATACA  
 ATGCAATGAAGAAACTTG  
 GATCCAAGAAACCTCAGAAACCCATACCTCGCCCAGCAgtaagaattactgtctctttaatgttccaaa  
 gccatgcgt  
 ccataatggcacaattgagcaatgctctggagcagaacatattagtgatatcccaattatggccctaataataaagt  
 cataatttgcataatccacaactctgcactcattaggaggtaccacattccaaaaaaggaggtaattgtctttat  
 aatttggagttgaaaactctagctcagggttcctaataataacttccaaagcagggttcacttctctgtaccaa

97  
 exon 26 (formerly exon 23)  
 tatataaaccaaatatgcttggtagctatataaattttttccatttttttaacatgaagagaaaaaagcacaca  
 aaattgtttgggtaatatgaggagggtgcacatccatcccgtatgtggaagggttlatctacaatttactcattat  
 tctttatgaatatatagtaaccttatttctctctcacttctagAACAAATTCGAAGGAATGGTCTTTGATTTT  
 GTAACCGAGACAAAGTCTTTGATATCAGCATCATGATCCTCATCTGCCTCAACATGGTC  
 ACCATGATGGTGGAACCGATGA  
 CCAGGGCAAATACATGACCCTAGTTTTGTCCCGGATCAACCTAGTGTTTCATTGTTCT  
 GTTCACTGGAGAAATTTGTGCTGA  
 AGCTCGTCTCCCTCAGACACTACTTCACTATAGGCTGGAACATCTTTGACTTTGT  
 GGTGTGATTTCTCTCCATTGTA  
 Ggtgaacagcttaattaccaagggtatagttacagagaacagttgccccaggacctctagctgattaacatgaa  
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98  
 exon 27 (formerly exon 24)  
 aaatctgtaagtctaagtcaggaggatggatccaaatatttaataaaggctcatattcatacaagtttgtgttcatag  
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 GTCTTGCCAGGATTGGCCGAAT  
 CCTACGTTCTGATCAAAAGGAGCAAAAGGGATCCGCACGCTGCTCTTTGCTTTGATGAT  
 GTCCTTCTCTGCGTTGTTTAAACA  
 TCGGCCTCTCTGCTTCTCTGGTCATGTTTATCTATGCCATCTTTGGGATGTCCAACITT  
 GCCTATGTTTAAAAAGGAAGCT  
 GGAATTGATGACATGTTCAACTTTTGAGACCTTTGGCAACAGCATGATCTGCTTGTTC  
 CAAATTACAACCTCTGCTGGATG

GGATGGATTGCTAGCACCIATTCTTAATAGTGACCAACCCGACTGTGACCCTGACAC  
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 AGGGAGACTGTGGGAACCCATCTGTGGGATTTTCTTTTTTGTGAGTTACATCATCAT  
 ATCCTTCTCGGTGGTGGTGAAC  
 AGTTACATCGCGGTATCCTGGAGAACTTCAGTGTGCTACTGAAGAAAGTGCAGAG  
 CCCCTGAGTAGGATGACTTTGA  
 GATGTTCTATGAGGTTTGGGAAAAGTTTGATCCCCaTGCAGCCAGTTTATAGAGTTC  
 TCTAAACTCTCTGATTTTGCAG  
 CTGCCcTGGATCCTCCTCTTCTCATAGCAAAACCCAACAAAGTCCAGCTTATTGCCAT  
 GGATCTGCCCATGGTCAGTGGT  
 GACCGGATCCACTGTCTTGATATTTTATTGCTTTTACAAAGCGTGTGTTGGGTGAGA  
 GTGGAGAGATGGATGCCCTTCG  
 AATACAGATGGAAGACAGGTTTATGGCATCAAACCCCTCCAAAGTCTCTTATGAGCC  
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 AACAAGAGGAGGTGTCTGCCGCTATCATTACGCGTAATTTACAGATGTTATCTTTTAA  
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 AGTAATAATAACAAAGAGGCAATAAAGGGGAGGATTGACTTACCTATAAAAAAAGA  
 CATGATTATTGACAAACTgAATGg  
 GAACTCACTCCAGAAAAAACAGATGGGAGTTCCTCTACCACCTCTCCTCCTCCTA  
 TGATAGTGTAACAAACCGACA  
 AGGAAAAGTTTGAGAAAAGCAAAACCGAAAAAGAAAGCAAAGGAAAGAGGTCAG  
 AGAAAATCAAAAGTAAaaagaaca  
 aagaattatcttggatcaattgtttacagcctatgaaggtaagtatatgtgcaactggactcaagaggagggtcca  
 tggccaactgactgttttaacaactactcatagtgcctatatacaagacagtgaaagtgcctctctgctgcaact  
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acaatttatttactttatgcttttgcttttgatttttaatacacaattccaacttttgaatccataagatttttcaatg  
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tacagaacaaaggcaaatgaaaagcagctttgtgcacttttatgtgtgcaaggatcaagttcacatgttccaacttca  
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tcttcttcaataataatgatgctatctcctaattacttgggtggctaataaatgttacatttctgttacttaaatgcat  
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tggatttatgtgaggtcaaaaccaaactctatttctcagtggaactccagttgtaatgcatatttttaagacaattt  
ggatctaaataigtatttcaataatttcccataataaattatataaaggtggctaa

Seq. Id. No. 98 (cont'd)

## Annex 2

[illegible]

TGAAAATTATTGCCATGGATCCTTACTATTATTTCCAAAGAAGGCTGGAATATCTTTG  
ACGGTTTTTATTGTGACGCTTAGCCTGGTAGAAGCTTGGACTCGGCAATGTGGAAGGAT  
TATCTGTTCTCCGTTCAATTTTCGATTGCTGCGAGTTTCAAGTTGGCAAAATCTTGGCC  
AACGTTAAATATGCTAATAAAGATCATCGGCAATTCGGTGGGGCTCTGGGAAATTT  
AACCTCGTCTTGGCCATCATCGTCTTCATTTTGCCTGGTTCGGCATGCAAGCTCTTT  
GGTAAAAGCTACAAAGATTGTGTCTGCAAGATCGCCAGTGATGTCAACTCCCACGC  
TGGCACATGAATGACTCTTCCACTCCTTCTGATTGTGTTCGGCGTGTGTGTGGGG  
AGTGGATAGAGACCATGTGGGACTGTATGGAAGTTGCTGGTCAAGCCATGTGCCTTA  
CTGTCTTCATGATGGTCATGGTGATTGGAAACCTAGTGGTCTGAATCTCTTTCTGGC  
CTTGCTTCGAGCTCATTTAGTGCAGACAACCTTGCAGCCACTGATGATGATAATGA  
AATGAATAATCTCCAAATTTGCTGTGGATAGGATGCACAAAGGAGTAGCTTATGTGA  
AAGAAAAATATATGAATTTATTCACAGTCCTTCATTAGGAAACAAAAGATTTTAG  
ATGAAATTAACCACTTGTATGATCTAAACAACAAGAAAGACAGTTGTATGTCCAAT  
CATACAGCAGAAATTTGGGAAAGATCTTGACTATCTTAAAGATGTAAATGGAACAC  
AAGTGGTATAGGAACTGGCAGCAGTGTGAAAAATACATTATGTATGAAAGTGATT  
ACATGTCAATTCATAAAACAACCCAGTCTTACTGTGACTGTACCAATGTCTGTAGGAG  
AATCTGACTTTGAAAAATTTAAACACGGAAGACTTTAGTAGTGAATCGGATCTGGAAG  
AAGCAAAGAGAACTGAATGAAAGCAGTAGCTCATCAGAAGGTAGCACTGTGGA  
CATCGGCGCAGGTGTAGAGAACACAGCCCGTAGTGGAACTGGAAGAACTCTTGAAC  
CAGAAGCTTGTTCACCTGAAGGCTGTGTACAAAGATTCAAGTGTGTCAAATCAATG  
TGGAAAGAGGCAGAGGAAAAACAATGGTGGAACTGTGAGAAGGACGTTTCCGAAT  
AGTTTGAACATAACTGGTTTGTAGACCTTCATTGTTTTCATGATTCTCTTAGTAGTGGT  
GCTCGGCATTTGAAGATATATATATTGATCAGCGAAAGACGATTAAGACGATGTTGG  
AATATGCTGACAAGGTTTTCACTTACATTTTCACTTCTGGAATGCTTCTAAAAATGGGT  
GGCATATGGCTATCAACATATTTACCAATGCCTGGTGTGGCTGGACTTCTTAATT  
GTTGATGTTTCATTGGTCAGTTTAACAGCAATGCCTTGGGTTACTCAGAAGTGGG  
GCCATCAAAATCTCTCAGGACACTAAGAGCTCTGAGACCTCTAAGAGCCTTATCTCGA  
TTTGAAGGGATGAGGGTGGTTGTGAATGCCCTTTAGGAGCAATTCCATCCATCATG  
AATGTGCTTCTGGTTTGTCTTATATTTCTGGCTAATTTTCAGCATCATGGGCGTAAATT  
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